Claims

[c1]   A method for controlling application of agricultural inputs to an area of cultivated grass, comprising:

a. acquiring remotely sensed digital image data, in the absence of a pretreated reference portion of the area of cultivated grass;

b. characterizing spatial variation of currently existing growth vigor of said cultivated grass; and

c. applying said agricultural inputs to said cultivated grass at a spatially variable rate within said area, as a function of said currently existing growth vigor of said cultivated grass.

[c2]   The method according to Claim 1, further comprising:

a. processing said digital image data to provide a data set comprising spatially distributed vegetation index data which characterizes current cultivated grass vigor throughout said area;

b. inspecting current actual cultivated grass conditions at control points within said area and correlating observed cultivated grass conditions with corresponding data in said data set;

c. generating a prescription based on said current ob-

served cultivated grass conditions and said spatially distributed vegetation index data in said data set; and

d. controlling application of said agricultural inputs according to said prescription.

[c3] The method according to Claim 2, wherein said step of generating a prescription comprises:

generating a prescription request as a function of said observed cultivated grass conditions and said spatially distributed vegetation index data in said data set;

communicating said prescription request to a data processor at a data processing site; and

said data processor generating said prescription, based on said prescription request and on said spatially distributed vegetation index data in said data set.

[c4] The method according to Claim 3, wherein said data processing site is at a location remote from said area.

[c5] The method of claim 3 wherein in said step of generating a prescription comprises:

a. obtaining a spray grid comprised of a plurality of grid cells for an area; and

b. determining the application rate for each grid cell of said plurality of grid cells.

[c6] A method for controlling application of agricultural in-

puts to an area of cultivated grass comprising:

a. acquiring remotely sensed multispectral digital data which characterizes currently existing conditions of said cultivated grass throughout said area, in the absence of a pretreated reference portion of the area;

b. processing said multispectral digital data to generate a digital map of said area, which map characterizes spatially differentiated existing growth vigor of said cultivated grass within said area; and

c. applying agricultural inputs to said cultivated grass at an application rate which varies specially throughout said area as a function of spatially distributed current cultivated grass vigor based on information contained in said map.

[c7] The method according to Claim 6, wherein said processing step comprises:

a. generating a data set comprising spatially distributed vegetation index data which characterizes said cultivated grass throughout said area;

b. entering said data set into a computer; and

c. entering information into said computer that is indicative of observed cultivated grass conditions at selected locations within said area and correlating said information with data in said data set.

[c8]   The method according to Claim 7, further comprising:

a. generating a prescription request as a function of said observed cultivated grass conditions correlated with said spatially distributed vegetation index data in said data set;

b. communicating a prescription request to a data processor at a data processing site; and

c. said data processor generating said prescription, based on a prescription request and on said data in said data set.

[c9]   The method according to Claim 8, wherein said data processing site is at a location remote from said area.

[c10]   A system for application of agricultural inputs to an area of cultivated grass, comprising:

a. means for obtaining multispectral digital image data that characterize spatial variation of currently existing growth vigor of said cultivated grass at a point in time;

b. centrally located data processing means for processing said multispectral digital image data to provide a data set comprising spatially distributed vegetation index data which characterizes currently existing growth vigor of said cultivated grass throughout said area at said point in time, and for storing and communicating said data set;

c. a mobile applicator means for applying said agricul-

ture inputs to said area at a spatially variable rate.

d. a control unit which is programmed to control spatial variation of an application rate of said agricultural inputs by a mobile applicator means, as a function of said currently existing growth vigor of said cultivated grass

[c11] The system according to Claim 10, further comprising:

a. a communication medium for transmitting said spatially distributed vegetation index data to an on-site location in proximity to said area; and

b. a portable processor programmed to receive and display said spatially distributed vegetation index data, receive entry of localized cultivated grass information at predetermined points in said area based on a physical on-site inspection, and prepare prescription requests based on currently existing growth vigor of said cultivated grass as defined in said spatially distributed vegetation index data, said localized cultivated grass information and inputs by a scout situated at said on-site location; wherein said centrally located data processing means includes means for generating a prescription in response to said prescription request, and a communication medium for communicating said prescription to said controller.

[c12] The system according to claim 11, wherein said second communication medium comprises: a digital electronic

means for sending said prescription to said on-site location; and a storage medium which receives and stores said prescription in a form that is readable by said control unit.

[c13] A method for controlling application of agricultural inputs to a crop in an area within said crop is selected from the group consisting of cultivated grass and timber, comprising:

a. acquiring a first digital image data set characterizing spatial variation of growth vigor over said area, for a currently existing crop which is growing in said area, in the absence of a pretreated reference portion of the area;

b. processing said first digital data set to generate a second data set comprising spatially distributed vegetation index data which characterize current growth vigor of said crop throughout said area, said second data set including at least a scout map identifying control points in said area;

c. transmitting said second data set to a computer situated in proximity to said area;

d. entering into said computer data characterizing currently existing growth vigor of said crop at said control points, based on a visual inspection of said control points said computer generating a prescription request,

based on said second data set, said data based on visual inspection, and inputs from an operator of the computer;

e. transmitting said prescription request to said data processing site;

f. generating prescription in response to said prescription request; and

g. loading said prescription into a controller of a mobile applicator means; and

h. controlling application of said agricultural inputs to said area, as a function of currently existing growth vigor of said crop.

[c14] A method for controlling application of agricultural inputs to a crop in an area wherein said crop is selected from a group consisting of cultivated grass and timber comprising:

a. acquiring near real time crop vigor data at at least one point in time during a growing season of said crop, said crop vigor data identifying current actual crop developmental of said crop, as of said at least one point in time during the growing season, in the absence of a pre-treated reference portion of the area;

b. using said crop vigor data to generate atleast one time variable and spatially variable dynamic crop prescription based on said actual crop development during said growing season; and

c. controlling application of agricultural inputs to said crop during said growing season, to reflect said actual crop development.

[c15] A computerized method for spatially variable rate application of agricultural chemicals based on remotely sensed vegetation data for an area, the method comprising:

a. opening a web browser on a user computer system;

b. establishing a secure electronic data network connection between the user computer system and a server computer system;

c. referencing latest remotely sensed vegetation data for an area in the absence of a pretreated reference portion of said area;

d. creating a scout map for an area; and

e. creating prescription maps for an area.

[c16] The method of claim 15 wherein said area is a zone.

[c17] The method of claim 15 wherein said area is a field.

[c18] The computerized method of claim 15 wherein the server computer system includes:

a. a digital file of user fields.

[c19] The computerized method of claim 15 wherein the server computer system includes:

a. a digital file of user zones.

[c20] The computerized method of claim 15 wherein the server computer system includes:
a. a digital file of user spray grids.

[c21] The computerized method of claim 15 wherein said electronic data network is the Internet.

[c22] The computerized method of claim 15 wherein said prescription is available on a website.

[c23] The computerized method of claim 15 wherein said prescription is transmitted directly to the controller of the mobile applicator means.